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ABSTRACT

This curriculum support package is intended to assist grades 5-8 teachers in Manitoba to start the process of integrating and implementing sustainable development in science and social studies courses. Containing four sections, the first section briefly outlines the origins of sustainable development, how it evolved, why it should be taught, what it is, and how it is defined. Sustainable development is defined as a set of attitudes and values that need to be incorporated into daily life, meet the needs of the present without compromising the ability of future generations to meet their own needs. It is a local decision-making process that integrates and balances the economic, societal, and environmental factors in a global context. Sustainable development decision-making understands that global thinking impacts local actions and local actions impact global well-being. The second section suggests the units and topics in social studies and science courses where sustainable development may be introduced and integrated. The third section is made up of three parts: (1) part 1 outlines an introductory strategy on sustainable development for teachers and students at the grades 5-8 level; (2) part 2 suggests several teaching and learning strategies that are curriculum and grade specific; and (3) part 3 describes a concluding participatory hands on strategy for teachers and students at the grades 5-8 level. The fourth section outlines an annotated sustainable development resource list. (OK)

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Sustainable Development Grades 5 to 8

Caring for the World

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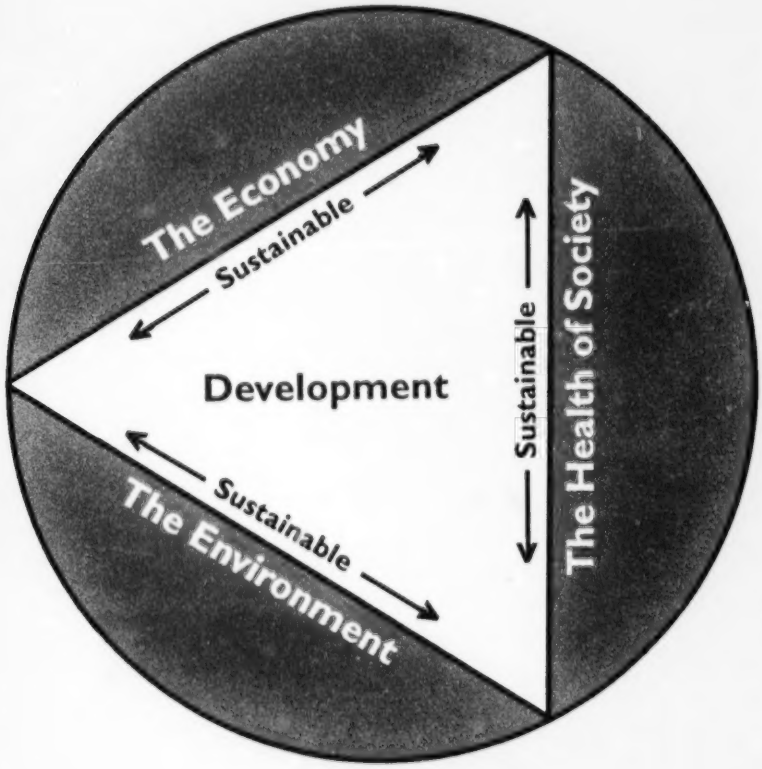

SO 023 258

Curriculum Support for Social Studies and Science Teachers

Manitoba Education and Training

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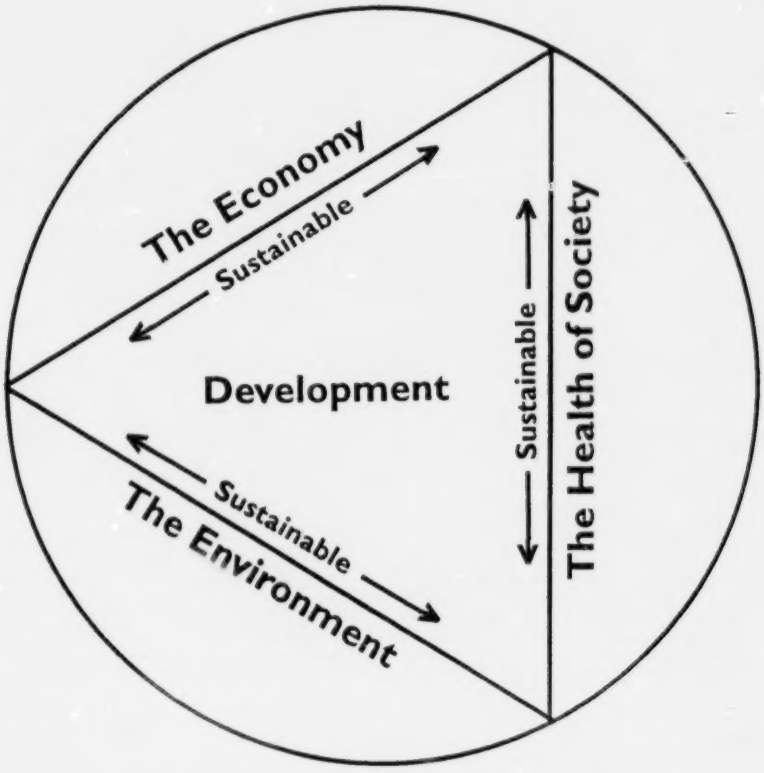
SUSTAINABLE DEVELOPMENT

The concept of sustainable development is a ***process of decision making*** in which the impact of economic activities (the economy), the environment, and the well-being (health) of society are integrated and balanced, without compromising the ability of future generations to meet their needs, and so that all three – the economy, the environment and the health of the society – can be sustained into the future.

Sustainable Development ... an integrated decision-making process ...



... a model where the needs of future generations can be sustained ...

where

Global Thinking Impacts Local Actions

The triangle represents the integrated and balanced decision-making process, in a global context, represented by the circle. The circle also represents the continuous natural ecological cycles of the Earth. It was developed for educators by John Lohrenz, Social Studies and Sustainable Development Consultant of the Curriculum Services Branch, Manitoba Education and Training.

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PREFACE

The Curriculum Services Branch of Manitoba Education and Training's has initiated **Sustainable Development Curriculum Support Packages** for social studies and science teachers. These Resource Packages are intended to assist K-4, 5-8, and S1-S4 teachers to begin the process of integrating and implementing sustainable development in science and social studies courses.

Grades 5 - 8 Resource Package Includes Four Sections:

Section One *briefly outlines the origins of sustainable development, how it evolved, why it should be taught, what it is, and how it is defined.*

Section Two *suggests the units and topics in social studies and science courses where sustainable development may be introduced and integrated.*

Section Three **Part I** *outlines an introductory strategy on sustainable development for teachers and students at the Grades 5 - 8*

Part II *suggests several teaching and learning strategies which are curriculum and grade specific*

Part III *outlines a concluding participatory "hands-on" strategy for teachers and students at the Grades 5 - 8 level.*

Section Four *outlines an annotated sustainable development resource list.*

The Curriculum Support Packages are designed to assist teachers to plan the initial implementation of sustainable development through integrating the concept into social studies and science courses. The packages are intended to be introductory, rather than ongoing, and once teachers have "internalized" the concept, and integrated it in their daily teaching, these resource packages will have served their purpose.

By John Lohrenz
Sustainable Development Consultant
Manitoba Education and Training

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- International Coalition for Land/Water Stewardship in the Red River Basin (Winnipeg office)
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- Several non-governmental organizations — Local United Nations Association, Manitoba Forestry Association, Manitoba Council for International Cooperation, The Fort Whyte Centre
- Lord Selkirk School Division No. 11, Maths, Science and Social Studies, K-12 Study Groups

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SECTION ONE

What are the Origins of Sustainable Development?

Sustainable development is not a new idea. In 1915, Canada's Commission on Conservation defined our need to live within the world's means. It stated:

"Each generation is entitled to the interest on the natural capital, but the principal should be handed down unimpaired."

The Paris **Biosphere Conference** and the Washington D.C. Conference on **Ecological Aspects of International Development**, held in the 1960's, sounded the alarm of environmental degradation and the need for action. Books like Rachael Carson's, **Silent Spring**, (1962) and the **Service Club Handbook for Environmental Activists** (1968) pointed out that humans had abused the Planet Earth to the point that the effects were becoming visible and even dangerous.

Silent Spring and Limits of Growth

The report, **Limits of Growth**, by the Club of Rome (1972) concluded it was time to undertake development which did not damage the environment. This report was published in June 1972 just prior to the opening of the **United Nations Stockholm Conference on the Environment** "Only One Earth", chaired by Maurice Strong, a Manitoban from Oak Lake. This gathering of delegates from 113 countries placed environmental issues for the first time on the international agenda. Only two heads of government attended, Prime Ministers Indira Gandhi of India and Olof Palme of Sweden.

From this meeting came the **Stockholm Declaration and Action Plan** with 109 recommendations for national and international action in areas of conservation of natural resources, education, human settlements, and pollution. The Stockholm meeting also resulted in the creation of the **United Nations Environment Program**, with Maurice Strong as its executive director.

In the years 1974-81, the United Nations held 10 major Conferences

. **Population** 1974
. **Food** 1974
. **Women** 1975
. **Habitat** 1976
. **Water** 1977
. **Desertification** 1977
. **Technical Cooperation** 1978
. **Climate** 1979
. **Science and Technology** 1979

. **Agrarian Reform** 1979
. **Renewable Sources of Energy** 1981.

These conferences failed to produce sought after changes, and crises continued to multiply, as industrialized countries became wealthier and developing countries grew more populous and poorer.

The pollution problems that gave birth to the Stockholm meeting continued to expand. Soil and forest cover, and many plant and animal species began disappearing.

The 1980 World Conservation strategy, prepared by the **International Union for the Conservation of Nature**, the **United Nations Environment Program** and the **World Wildlife Fund**, promoted the concept of environmental protection in the self-interest of the human species.

In this context, the United Nations initiated the **World Commission on Environment and Development** in 1983. It was presented to the United Nations in 1987 under the title **Our Common Future**, often called **The Brundtland Commission** named after Gro Harlem Brundtland, the prime minister of Norway, who chaired the commission.

The report concluded that the integration of environment and development which was called sustainable development was the only sound and visible means of ensuring both our environment and development future. It described sustainable development as ***"development that meets the needs of the present without compromising the ability of future generations to meet their own needs."***

In response to the world's environmental conditions and to a groundswell of public opinion, the General Assembly of the United Nations voted in December 1989 to hold a world conference on Environment and Development on the 20th Anniversary of the Stockholm meeting. The location for the Earth Summit would be Rio de Janeiro, Brazil.

Representatives from 178 countries, with 117 heads of state, met June 1992 in Rio to discuss the relationship between the environment and economy. The conference

World Commission on Environment and Development

Rio Summit, June 1992
Agenda 21

produced **Agenda 21** - an 800 page report to shape sustainable development initiatives for the 21st century.

Maurice Strong, who chaired the Stockholm conference in 1972, also chaired the **United Nations Conference on Environment and Development** (UNCED) in Rio. He stated that the difference between these two events is that humanity does not have another "*twenty years to squander before it starts to clean up the mess it has made of this planet.*"

Canada responded to **Our Common Future** by creating a 17-member **National Task Force on Environment and Economy**. This Task Force submitted its report to the Council of Resource and Environment Ministers in September 1987. It called for the creation of Round Tables on Environment and Economy.

In 1988 Prime Minister Brian Mulroney announced, to the General Assembly of the United Nations, the creation of the **International Institute for Sustainable Development** in Winnipeg. IISD officially opened in March 1990.

Membership of **The Manitoba Round Table on Environment and Economy**, established in 1988, is made up of concerned citizens, key government, industry, and non-governmental representatives. The Manitoba Round Table sets the agenda for sustainable development initiatives in Manitoba.

As a result of these developments, education systems have been encouraged to begin implementing the concept of sustainable development, not only in Manitoba, but across Canada and throughout the world.

In October 1992, an international follow-up conference to Rio took place in Toronto. The **ECO-ED Conference** (Education and Communication on Environment and Development), an environmental educators' conference, had the primary purpose "*to stimulate informed action by improving the accuracy, quality, and delivery of education and communication relating to the environment and sustainable development.*"

Manitoba Round Table

October 1992 Toronto

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Why Teach Sustainable Development?

In **The Global Partnership for Environment and Development**, prepared for the Rio Conference, Maurice Strong wrote:

> *"There is pervasive hunger, poverty, illiteracy, and ill health. The ecological consequences of ozone depletion, climate change, soil degradation, loss of biodiversity, and the increasing pollution of air, water, and land threaten our common and sustainable future."*

The principal outcome of the Rio Conference is **Agenda 21**, an action plan to take us into the 21st Century. It outlines strategies and integrated program measures to halt and reverse the effects of environmental degradation. It promotes environmental renewal and sustainable development in all countries.

Such renewal calls for the efficient and effective management of resources. It also demands proper waste management and pollution reduction through a wide and responsible participation of people at local, national, and global levels.

In the conference foreword, Maurice Strong wrote:

> *"The successful implementation of* ***Agenda 21*** *necessitates a global partnership for sustainable development within which all nations make political, social, and economic commitments, individually and collectively, to ensure the allocation of essential means for a viable and sustainable human future."*

> *"**Agenda 21** is based on the premise that sustainable development is not just an option but an imperative, in both environmental and economic terms, and that while the transition towards sustainable development will be difficult, it is entirely feasible. It requires a major shift in priorities for governments and people involving the full integration of the environmental dimension into economic policies and decision-making in every sphere of activity and a major redeployment of human and financial resources at national and international levels. This global partnership is essential to set the world community onto a new course for a more sustainable, secure, and equitable future as we move into the 21st Century. The primary responsibility for our common future is, in a very real sense, in our hands."*

The "Education, Public Awareness, and Training" section of the **Guide to Agenda 21** states:

> *"Education is the social institution entrusted with the main responsibility for passing on to succeeding generations the wisdom, knowledge and experience gained from the past. It represents a guided path which helps individuals to understand their own societies and to take their place in them. Education is perhaps the single most important influence in changing human attitudes and behaviour, promoting economic growth and raising the quality of life, providing the knowledge and skills that produce jobs and increase productivity. It equips*

people for meeting contemporary needs."

". . . it is essential to incorporate sustainable development concepts into all levels of education, from basic to tertiary, and for all groups of society. This requires the development of new and alternative teaching methods and the strengthening of community involvement and educational partnerships."

". . . A major priority is to reorient education towards sustainable development by improving each country's capacity to address environment and development in its educational programs, particularly in basic learning. This is indispensable for enabling people to adapt to a swiftly changing world and to develop an ethical awareness consistent with the sustainable use of natural resources. Education should, in all disciplines, address the dynamics of the physical/biological and socio-economic environment and human development, including spiritual development. It should employ both formal and non-formal methods of communication."

Education is Key

". . . Schools should be assisted in designing environmental activity work plans, with the participation of students and staff, and incorporate them throughout the curriculum. They should employ proven and innovative interactive teaching methods."

It is in this context, and through the initiatives of the National and Provincial Round Tables on Environment and Economy, that the action plan and the motivation for implementing sustainable development in Manitoba schools arises.

The intent is **for all** teachers in Manitoba to become aware of the concept to the extent that they will be able to teach appropriate content in the context of sustainable development. **In the initial stages the focus will concentrate on teachers of Social Studies and Science who will be encouraged to integrate and implement the concept into their courses.**

Social studies and science are mandatory subjects for all students K-11, and the content of these courses is related closely to aspects of the environment, economy, and the well-being or health of a society.

As new curriculum guides are developed for courses, or existing courses are revised, the concept of sustainable development is to be included, so that eventually this concept is incorporated into all grade levels and all courses, wherever appropriate. **It is a concept that does not necessarily add new content to a course, but suggests that the content be taught in a new way.**

What is Sustainable Development and How is it Defined?

Sustainable development is a decision-making process rather than an event or a fact. It is a process of changing the character of a society. It is **a set of attitudes and values we need to incorporate into our way of life.** "It involves fundamental changes in the way business is done, what is taught to our children, how we as individuals live and conduct our lives and how government and societies' public institutions address the essential problems affecting our life."[1]

Sustainable development is ongoing and is evolving continually to meet changing ecological conditions. It presents, a model for present and future living.

Admittedly, no one can say with precision exactly what constitutes sustainable development for every country and for every community. In some ways sustainable development is a concept similar to that of *democracy*, *freedom*, *human rights* or *multiculturalism* — difficult to define, yet we live within these contexts.

There are definitions which indicate some consensus. Simply expressed and generally accepted is the definition of the Brundtland report:

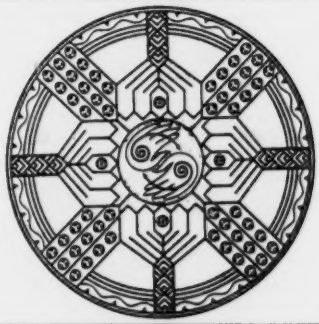
"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

Caring for the World defines sustainable development as "improving the quality of human life while living within our ecological means."

The September 1992 issue of **Connect**[2], stated:

*"The distinction between **growth** and **development** is useful and can be demonstrated by an example: a child normally grows in size until adulthood, but his/her development (one hopes) is lifelong. Similarly, in social terms, one should speak of the goal of a society's development as that of procuring for its members a better quality of life — and define **quality of life** in terms of health and longevity, employment, education, freedom and security, culture and the respect for basic human rights. One might add an aesthetic dimension.*

The dilemma for decision-makers is how to improve a people's quality of life through economic growth (certainly a necessity for most, if not all, countries of the world) without sacrificing their natural — or built — environment. Again, however complex, the solution is in sustainable development."



IISD
Promoting a Global Transition to Sustainable Development

In one of its publications, the **International Institute for Sustainable Development** (IISD) stated:

> *'Sustainable Development is a response to rising global concern about environment, economy, and the well-being of people. The world's environment, economy, and social fabric are interlocking. Local, national and global problems impact upon each other. Development cannot ignore these connections without risk to the planet and ourselves to meet the needs of all peoples of the earth, now and in the future, sustainable development is required. We need profound changes in the way we make decisions through government and business and on our own.*
>
> *A global transition to sustainable development won't happen without substantial change: change in attitudes and lifestyles; change in policies which ignore impacts on the environment and resources; change in development practices which undermine social values; change in the relationships between governments, industry, the voluntary sector and individuals; and change in international co-operation."*

The IISD booklet pointed out that

> *"Sustainable development requires a commitment to fairness and equity, and the foundation upon which it will be achieved is the global concern for health and livelihood."*

Sustainable development is a local decision-making process which integrates and balances the economic, societal (health and well-being of society), and environmental factors in a global context. All three factors must be sustained and developed if future generations are to meet their needs. Sustainable development decision-making understands that global thinking impacts local actions and local actions impact global well-being.

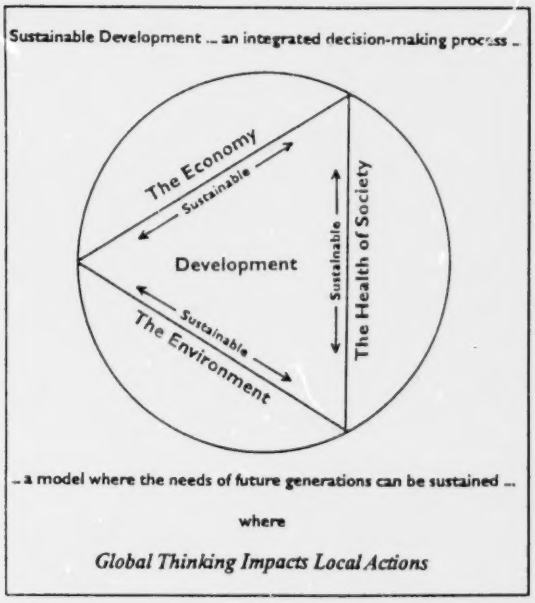
As an integrated decision-making process, sustainable development recognizes "we can never do merely one thing" without it impacting on something else. As such, we need to learn how to apply the sustainable development process to all the decisions we make. It is a lifeskill.

In introducing her report, Gro Harlem Brundtland wrote "*The environment is where we all live; and development is what we all do in attempting to improve our lot. The two are inseparable.*"

Sustainable development acknowledges that the developed countries and the least developed countries must both contribute to the process but perhaps in different ways. The link between solving world poverty and hunger but still maintaining the health and well-being of society must be recognized.

The **Curriculum Services Branch of Manitoba Education and Training** has defined sustainable development as

> "...a process of decision-making in which the impact of economic activities, the environment, and the well-being (health) of society are integrated and balanced, without compromising the ability of future generations to meet their needs, and so that all three - the economy, the environment and the health of the society - can be sustained into the future."



The triangle represents an integrated and balanced decision-making process, sustainable in a global context, represented by the circle. The circle also represents the natural cycles of the environment.

It is this definition and teaching model that forms the basis for the sustainable development resources produced by the Curriculum Services Branch of Manitoba Education and Training.

The second graphic has been suggested by two Canadian environmentalists (Jacobs and Sadler).[3]

This model presents the concept of sustainable development as a scheme for analyzing the policies and investments involved in a country's, or community's, development planning. It further involves a system of values and choice of policies that may vary from one society to another, each to wisely define its own, advisedly in terms of an improved quality of life for its members.

A third graphic representation[4]:

In each of the three illustrations a central consideration is the quality of life and its betterment, now and in the future - the central goal of sustainable development.

Schools are being requested to make a shift in focus from environmental education to sustainable development education. In the final report of an **Environmental Seminar for Women**, held in Auckland, New Zealand in April 1992, we read[5]

"Environmental education is no longer the appropriate term to describe the educational force which we need to bring into play if we are to be effective in changing directions and improving the environment and the lives of people. Today, we need to orientate our thinking towards "Education for Sustainability" which combines Environmental Education with Development Education, Peace Education and Women's Issues."

The concept of sustainable development is an evolving concept and will only be understood more fully as all of us, throughout the world, work in defining and implementing it. The message, however, is clear - we need to change to a more sustainable world society.

For the **Manitoba Round Table on Environment and Economy**, sustainable development is a general philosophy, ethic, and approach to guide individual and collective behaviour with respect to a sustainable economy in a clean, safe and healthy environment for the well-being of both present and future generations. **Their statement of belief states**[6]

- ***We cannot continue to develop economically unless we protect the environment***
- ***Continued economic development will be needed to pay for important environmental initiatives***
- ***Needs of the present must be met without sacrificing the ability of future generations to meet their own needs***
- ***Attention must be paid to long term effects of both environmental and economic decisions***

Because there is a recognition that the earth's ability to sustain human development and activity is limited, implementing sustainable development will be required to[7]

- *generate more from less through efficient and effective use of resources*
- *reduce, reuse, recycle and recover the products and by-products of production, and consumption*
- *ensure environmentally sound value-added (secondary and tertiary) processing and manufacturing*
- *enhance productivity through political, technological, scientific institutional and social innovation*
- *replenish and reclaim damaged environments*
- *increase the productive capability and quality of natural resources and*
- *conserve and develop substitutes for scarce resources.*

To realize the above, the Manitoba Round Table has developed ten principles and six guidelines[8] which describe the very nature and characteristics of sustainable development. These principles and guidelines are to govern the decisions made by government, business, and the public with reference to the economy, environment, and well-being of society.

Principles Adapted from the Manitoba Round Table

The vision of environmentally sound and sustainable economic growth for Manitoba is governed by the following principles

1. **Integration**. Ensures economic decisions adequately reflect environmental impacts including human health. Environmental initiatives shall adequately take into account economic consequences.

2. **Stewardship**. Manages the environment and economy for the benefit of present and future generations.

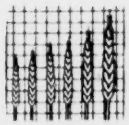
   Stewardship requires the recognition that we are caretakers of the environment and economy for the benefit of present and future generations of Manitobans. A balance must be struck between today's decisions and tomorrow's impacts.

3. **Shared Responsibility**. Acknowledges responsibility of all Manitobans for sustaining the environment and economy, with each being accountable for decisions and actions, in a spirit of partnership and open cooperation.

4. **Prevention**. Anticipates, prevents or mitigates significant adverse environmental (including human health) and economic impact of policy, programs, and decisions.

5. **Conservation**. Maintains essential ecological processes, biological diversity and life-support systems of our environment; harvest renewable resources on a sustained yield basis; and make wise and efficient use of our renewable and non-renewable resources.

6. **Recycling**. Endeavours to reduce, reuse, and recover the products of our society.



7. **Enhancement.** Enhances the long-term productive capability, quality and capacity of our natural ecosystems.

8. **Rehabilitation and Reclamation**. Endeavours to restore damaged or degraded environments to beneficial uses.

Rehabilitation and reclamation require ameliorating damage caused in the past. Future policies, programs and developments should take into consideration the need for rehabilitation and reclamation.

9. **Scientific and Technological Innovation**. Researches, develops, tests and implements technologies essential to further environmental quality including human health and economic growth.

10. **Global Responsibility**. Requires thinking globally while acting locally.

Global responsibility requires that we recognize there are no boundaries to our environment, and that there is ecological interdependence among provinces and nations. There is a need to work cooperatively within Canada, and internationally, to accelerate the merger of environment and economics in decision making and to develop comprehensive and equitable solutions to problems.

Fundamental Guidelines

In addition to these principles, there are a number of fundamental guidelines. These guidelines have equal status to the principles, supporting them and indicating how to achieve the sustainable development vision for Manitoba.

1. **Efficient Use of Resources.** Encourage and support development and application of systems for proper resource pricing, demand management, and resource allocation together with incentives and disincentives to encourage efficient use of resources and full environmental costing of decisions and developments.

2. **Public Participation.** Establish appropriate forums which encourage and provide opportunity for consultation and meaningful participation in decision-making processes by all Manitobans. We shall endeavour to ensure due process, prior notification and appropriate and timely redress for those affected by policies, programs, decisions and developments.

3. **Understanding and Respect.** Be aware that we share a common physical, social and economic environment in Manitoba. Understanding and respect for differing social and economic views, values, traditions and aspirations is necessary for equitable management of these common resources. Consideration must be given to the aspirations, needs, and views of various regions and groups in Manitoba.

4. **Access to Adequate Information.** Encourage and support the improvement and refinement of our environmental and economic information base and promotion of the opportunity for equal and timely access to information by all Manitobans.

5. **Integrated Decision-Making and Planning.** Encourage and support decision-making and planning processes that are open, cross-sectoral, efficient, timely, and relevant to long-term implications.

6. **Substitution.** Encourage and promote the development and use of substitutes for scarce resources where they are both environmentally sound and economically viable.

SECTION TWO

Section two **suggests** the units and topics in the grades 5-8 social studies and science courses where sustainable development may be introduced and integrated. Once teachers have "internalized the concept of sustainable development" it will become a "way of teaching that content" throughout the course. When that happens, this section will no longer be required and the concept of sustainable development will become part of the overall course.

Social Studies	Science
GRADE 5	
Unit II: The Prairies ***Topic 2:*** *Life Today*	**Unit 5**: Interdependency and Interaction Among Organisms ***Topic:*** *Adaptations to the Environment*
GRADE 6	
Unit II: The Coming of the French ***Topic 1:*** *The Interaction Between the Newcomers and the Native Peoples* ***Topic 2:*** *Life of the New Immigrants in New France*	**Unit 5**: Environmental Interdependency and Interaction Among Organisms ***Topic:*** *Interactions of Populations within the Environment*
GRADE 7	
Unit II: The Physical Environment and its Resources ***Topic 2:*** *Major Resources of the Earth and Their Importance to the Continuation of Life on Earth*	**Unit 6**: Earth, Space and Time ***Topic:*** *Rocks, Minerals, and Soil*
GRADE 8	
Unit IV: Life in the Modern World ***Topic 3:*** *Today's World Issues*	**Unit 2**: Environmental Interdependency and Interaction Among Organisms ***Topic:*** *Plants and the Total Environment*

SECTION THREE

There are **Three Parts** to this section.

Part I *outlines a general strategy to introduce the concept of sustainable development to social studies and science students in Grades 5-8.*

Part II *suggests several teaching/learning strategies, grade and subject specific, which assist teachers to integrate sustainable development into the social studies and science courses at each grade level, as identified in Section Two.*

Part III *outlines a general concluding "participatory hands-on" strategy for students grades 5-8 in social studies and science.*

PART I: INTRODUCTORY ACTIVITY FOR GRADES 5-8

Topic: ***Going to a Lake or Beach***

Focus: The process of decision-making, in the context of sustainable development.

Overview: This activity is intended to introduce sustainable development as an integrated decision-making process and to demonstrate the impact that human decision-making has on the economy, the environment, and the well-being of people. It is also intended to assist teachers with the type of questions which need to be raised.

Objectives:

- To create a greater awareness and understanding of what is meant by the concept of sustainable development.

- To assist students to begin a decision-making process that is more sustainable in the context of the economy, the environment, and the well-being of people, both locally and globally.

Focusing Questions:

- **How many of you go to a lake or beach on an annual basis? Where and how do you go? What do you like about your lake or beach? What do you dislike? Why?**

- **What items would you and your family take along to the lake or beach, for an extended weekend or holiday? (List the items)** *Consider food (packaging), dishes, clothing, toiletries, toys, protection from the sun and insects, etc.*

- **What activities would you be involved in at the lake or beach? (Make a list)** *Consider: swimming, canoeing or boating, cutting firewood, relaxing — sun-bathing, bird watching, berry picking, going for a walk, playing games, caring for plants and animals.*

- **What are some of the jobs associated with the economic activities that are evident at the lake or beach? (Make a list)** *Consider: forest clearing, roads, boat docks, beaches, cottages, stores, gas stations, food stands or stores, sleeping accommodations and, sporting activities.*

- **What types of garbage and wastes need to be disposed of at the lake or beach? How is this generally done?** *Consider: food packaging, kitchen food, water waste, and human waste.*

- **How has the local economy and the environment been changed at the lake or beach because of human activity?** *Consider: forest clearing, roads, boat docks, beaches, cottages or homes, stores, schools, gas stations, food stands or stores, hospitals, sleeping accommodations, and sporting activities.*

Suggested Activities:

- To begin focusing on the topic, have students either as a class, in small groups, respond to the focusing questions -- a brain storming type of activity. Categorize these as follows

  - items taken along
  - activities at the lake or beach
  - jobs and economic activities
  - garbage and waste disposal
  - environment changes

- Review and discuss with students that "Sustainable development is a decision-making process which integrates and balances the impact of human economic activities on the environment and the well-being of people, in such a way that the economy, the environment and the health of people can be sustained for future generations."

  - By examining the items identified in the first activity, have students suggest changes that could be made for a more sustainable future in the context of the economy, the environment or the well-being of people.

Note: The discussion about changes could focus on

- *food-packaging with less waste*
- *canoeing and non-motorized boats vs power boating vs*
- *activities that are environmentally "more sound" as opposed to those that are "less sound"*
- *economic activities that are "more" necessary as opposed to those that are "less" necessary*

- *making existing activities more environmentally sound*
- *garbage and waste disposal — composting, producing less garbage and waste*
- *education, to make people more aware of the consequences of their actions*

The primary objective is for students to begin discriminating between those economic activities that can be sustained environmentally for the well-being of future generations as opposed to those that cannot be sustained by the environment into the future.

- Have students discuss the implications of not making any changes "to the way we do things today" for future generations (record these).

- Identify an item from each category and discuss how decisions we make at home, in our community, in our country, or in the world, can impact on the economy, the environment or the well-being of people, at present and in the future.

PART II: SUSTAINABLE DEVELOPMENT ACTIVITIES AND STRATEGIES

Part II suggests the learning activities and strategies for the units and topics at each grade level, in social studies and science, where sustainable development activities can be introduced and integrated. Once a teacher has "internalized" the concept of sustainable development, the content of the courses will be taught in that context. When that occurs, the suggestions in this support package will no longer be necessary.

GRADE 5 SOCIAL STUDIES

UNIT 11: CONTEMPORARY LIFE ON THE PRAIRIES

TOPIC 2 - LIFE TODAY

Note: Teachers who are teaching both the science and social studies courses to the same students, should select the course where the concept of sustainable development will be introduced.

Overview: Through examining both rural and urban economic decisions made on the prairies, in the context of their impact on the local environment and the well-being of the people, students explore alternative decisions that need to be made if future generations are to be sustained with a "reasonable" quality of life.

Focusing Questions:

- **What economic activities and related jobs are there on the prairies?** *Consider both rural and urban e.g. farming, gardening, manufacturing, business, hydro development, logging, mining, fertilizer companies, chemical companies, etc.*

- **What are some of the natural resources that rural people depend upon?** *How does this differ from urban people? Consider water, soil, wildlife, plants.*

- **Which of the economic activities have the potential to have a significant effect on the environment? . . . on the well-being (health) of people? Why?** *Consider: specific agricultural practices, business or manufacturing ventures.*

- **Which economic activities in your area, do you feel are not sustainable in the long run, if no changes are made. Why?**

- **What alternative economic decisions should be made on the prairies, in the context of the environment and/or the well-being of people, so that future generations can be sustained with a "reasonable" quality of life?** *Consider: impact on jobs — research and creation of new or alternative jobs, changes that should be considered, conservation, recycling, rehabilitation.*

Objectives: Students should be able to meet the following knowledge, thinking and research, attitude and value, and social participation objectives to

- identify economic activities on the prairies and the related jobs.
- identify the natural resources upon which these activities depend.
- identify the effects on the environment and on the well-being of society of these economic activities and jobs.
- compare activities in relationship to their impact on the environment and well-being of people.
- distinguish between economic activities which are environmentally sustainable as opposed to those that are not sustainable in the long term.
- share their own values and attitudes to prairie economic activities.
- plan and carry out a sustainable development activity in small groups, and report their findings to the class.

Suggested Teaching Strategies and Learning Activities

Introductory Activities:

- Have students develop a list of economic activities on the prairies with an associated list of different jobs, and natural resources used within each of these activities:

ECONOMIC ACTIVITES	ASSOCIATED JOBS	NATURAL RESOURCES USED

- Have students, in small groups, draw up a list of questions on the concept of sustainable development, which could be used to interview a representative from a business, industry, manufacturer, farmer etc.

Compile these, and by consensus, identify the best questions for interview purposes.

Developmental Activities:

- Have students identify representatives from specific industries, businesses, manufacturers, farmers, etc, whom they would like to invite to class to speak on economic and environmental issues.

or

- Have students in small groups of 2 or 3, interview representatives from the above and share their findings with the class.

* ***In either case, appropriate questions should be developed***

- Using the information gathered in the introductory activity and through research, have students discuss how their findings might be the same or different in relation to similar questions in other parts of the province, country, or other country.

  - Which of the principles of sustainable development are being practised in their community? To what extent?

  - Which principles of sustainable development are not really being practised? Why? What are the implications?

  - What would they change if they were the decision-makers? What impact might their change have?

  - How does their community compare with other communities in Manitoba, in Canada, in the world in terms of adhering to the concept of sustainable development.

Concluding Activities

- In small groups, have students prepare a list of things (i) they could do, (ii) others could do, to begin the process that the needs of future generations could be more sustainable.

- In small groups, have students prepare a list of things they could do to enhance the environment and well-being of the students in their school. Through consensus, have students choose a project they would like to implement and have them plan how this might be done.

GRADE 5 SCIENCE

UNIT 5: INTERDEPENDENCY AND INTERACTION AMONG ORGANISMS

TOPIC - ADAPTATION TO THE ENVIRONMENT

Overview: Students examine how environmental changes cause other changes because of interdependency and interaction of all earth's life forms.

Focusing Questions:

- **How have the economic activities on the prairies produced changes in the environment?** *Consider the interdependence of plants and animals, changes in the landscape, etc.*

- **How can environmental changes on the prairies affect the economy and the well-being of the people?...the well-being of plants and animals?**

- **How do different plants and animals adapt to minor changes in their environment?...to major changes?**

Objectives: Students should be able to meet the following knowledge, thinking and research, attitude and value, and social participation objectives to

- identify species of flora and fauna in the prairies, and recognize their interdependence.
- explore ways in which economic activity on the prairies has caused change in the environment and created adaptations in plants and animals or caused their appearance or disappearance.
- explain how the well-being of society can be affected both positively and negatively by environmental changes, caused by economic activities.
- suggest and plan ways in which their findings might be applied to their classroom, school, or community.

Suggested Teaching Strategies and Learning Activities

Introductory Activities:

- Have students, in small groups, explore and record how plants and animals on the prairies are interdependent.

- Have each group report their findings.
- Have them discuss "what concluding statement can be made from the findings"?
- Why is it important that people understand the interdependence?

Developmental Activities:

- Have students research and record which plants and/or animals have increased, adapted, appeared, decreased significantly or disappeared on the prairies as a result of economic decisions which have changed the environment. *Consider both rural and urban locations.*

- Have students comment on such things as:

  - What impact has the increase, appearance, adaptation, decrease, or disappearance had?

  - Is it important that some species have increased significantly while others have disappeared? Why?

  - Is it important that people make different economic decisions in the context of the environment? . . . in the context of the well-being of society? Why?

  - What kind of activities can accelerate environmental changes and thereby have significant impacts on plants and animals?

  - What can slow down the environmental changes? What might be the result or impact of such a move?

- Have students discuss the value of plants and/or animals on the prairies. *Consider economic value, aesthetic value, environmental value, etc.*

  e.g. Does a tree have value as a tree, or does it only have value once it is cut down and used for something? Discuss.

  Can trees still be cut down in a sustainable world? *Discuss*

Concluding Activities

- Have students review the definition and principles of sustainable development.

- Divide the class into small groups and have each group do a project in which they identify some aspect of the prairies or their community and describe "what it is like now", then apply the definition and principle(s) of sustainable development to this aspect and describe "what it might be like in the future". Have them consider this in the context of the environment, the economy and the well-being of society.

GRADE 6 SOCIAL STUDIES

UNIT II: THE COMING OF THE FRENCH

TOPICS 1 & 2 - INTERACTION BETWEEN NATIVE PEOPLES AND NEWCOMERS

Overview: Students examine how the economic decisions of the Native People differ from that of the early European French settlers, and how this difference in value systems created changes in the environment and well-being of the people which were both positive and negative.

Focusing Questions:

- **What was life like for the Native Peoples in Canada, in the context of their economy, environment, and well-being, prior to European settlement?**

- **How did the decisions about the economy, the environment and the well-being of Native Peoples differ from that of the new European French settlers who came to Canada? What were the implications of these differences? Are these differences still evident today?**

- **What are some of the lessons about the relationship between the economy and the environment that can be learned from Aboriginal Peoples?**

Objectives: Students should be able to meet the following knowledge, thinking and research, attitude and value, and social participation objectives to

- describe the way of life of Native Peoples in the context of the economy, the environment and well-being, prior to European settlement.
- compare and contrast the way of life of Aboriginal Peoples with that of the early European French settlers in the context of economic activities, the perception of the environment, and the well-being of each society.
- discuss the lessons that can be learned about the relationship between the environment and the economy from Aboriginal Peoples in Canada and other parts of the world.
- plan and participate in a project that would direct present-day society towards a more sustainable society for future generations.

Suggested Teaching Strategies and Learning Activities

Introductory Activities:

- Have students examine how life in general, for Aboriginal Peoples in North America was the same or different from that of Europeans in Europe prior to their settlement in North America. Focus on economic activities, environmental conditions and perceptions and the well-being of the two societies.

PRIOR TO EUROPEANS SETTLING IN NORTH AMERICA		
Topics	**Aboriginal Peoples in North America**	**Europeans in Europe**
Economic Activities		
Environmental Conditions and Perceptions		
Well-being of Society		

- Have students list and discuss reasons why Europeans left Europe to settle in North America. How were conditions in North America different? What impact did this new settlement have on the Aboriginal Peoples living in North America?

Developmental Activities:

- Have students in small groups chose either the economy, the environment or the well-being of people and compare how the decisions that Aboriginal Peoples made differed from that of the European French settlers.

Following that, have the discussion focus on questions such as:

- How did the attitudes and values of these two groups differ? . . . how were they the same?

- What conflicts arose between the two groups as a result of these differences either economically or with reference to their perceptions of the environment?

- What resources were valued by the Aboriginal Peoples? . . . by the European French settlers? Why? What was the result?

- Have students research and discuss the lessons that people all over the world can learn about the relationship between the economy and the environment from Aboriginal Peoples. (Perhaps an appropriate speaker from the Native Community could be invited to elaborate on this topic).

Concluding Activity:

- Taking our imperfect world as a start-off point, have students in small groups, list sustainable development decisions that present-day society needs to make to ensure that the generations living 100 years from now will be able to have a "reasonable" quality of life. (This might take the form of a role play, song, project, short story, a video, or some other form.)

  - What kind of life do you wish for future generations?

  - What is a "reasonable quality of life"?

GRADE 6 SCIENCE

UNIT 5: ENVIRONMENTAL INTERDEPENDENCY AND INTERACTION AMONG ORGANISMS

TOPIC - INTERACTIONS OF POPULATIONS WITHIN THE ENVIRONMENT

Overview: Students examine how humans, plants, and animals are interdependent and must share the resources of a finite global ecology for their survival.

Focusing Questions:

- **What is significant about the definition of "population" in the context of a local and global ecology?**

- **How does the disappearance of a species impact on the plant earth's ecology? Consider natural and human related causes?**

- **How are humans, plants and animals interdependent? What are the implications of this interdependence on the resource base of Planet Earth?**

Objectives: Students should be able to meet the following knowledge, thinking and research, attitude and value, and social participation objectives.

- recognize the finite nature of planet Earth's resources.
- explain the significance of all life forms being interdependent.
- discuss the implications of the interdependence of humans, plants and animals on the resource base of Planet Earth.

Suggested Teaching Strategies and Learning Activities

Introductory Activities:

- Have students research the meanings of: ecology, environment, populations, species, resources, consumption, production, renewable resources, non-renewable resources, interdependence.

Developmental Activities:

- Have small teams of students research their community, a wetland, a forested area, a grassland, etc - focusing on the following:

  - identifying the resources available within the environment.

  - identifying as many species of life as possible within the environment.

  - identifying impacts on the environment such as climate, pollution, human activities, etc.

  - identifying the value of that environment.

  Have each team report their findings to the whole group.

Concluding Activities:

Comment

Each environment has a resource base that has some value. The decisions of how to develop that resource base are usually made to improve the well-being of human beings.

The concept of sustainable development promotes that economic decisions about developing the environment and its resources should be integrated and balanced in such a way that the well-being of human beings can be sustained for future generations, both locally and globally.

- Have the teams of students evaluate to what extent the prairie environment that they have researched is sustainable and what should be done (if anything) to make it sustainable for future generations.

GRADE 7 SOCIAL STUDIES

UNIT II: THE PHYSICAL ENVIRONMENT AND IT'S RESOURCE

TOPIC 2 - MAJOR RESOURCES OF THE EARTH AND THEIR IMPORTANCE TO CONTINUATION OF LIFE ON EARTH

Overview: Students examine the significance and importance of water as a resource to all of planet earth's life-cycles and eco-systems.

Focusing Questions:

- **What is the importance and significance of water as a resource to humans, plants and animals?**

- **How does the natural water cycle operate?**

- **How is water being polluted? How can water pollution be reduced?** *Consider with local, provincial, country, and world pollution and reduction.*

- **How is water being wasted? How can water be conserved?** *Consider with reference to local, provincial, country and world wastage and conservation.*

Objectives: Students should be able to meet the following knowledge, thinking and research, attitude and value, and social participation objectives.

- identify the sources of water and its function as a resource to humans, plants and animals.
- explain the water cycle as a natural recycling process and examine ways in which human activity can disrupt this process.
- identify practical ways in which changes in the use of water could sustain this resource for future generations.
- discuss the importance of responsible use of water resources in relationship to the economy, the environment and the health and well-being of society.

Suggested Teaching Strategies and Learning Activities

Note: It is suggested that the video **WaterWorks** and Teacher's Guide become the basis for introducing the concept of sustainable development and for giving direction to the activities. *The*

video ***WaterWorks*** *is available from the Instructional Resources Branch, Video Dubbing Services, Box 4, Main Floor, 1181 Portage Avenue, Winnipeg, Manitoba, R3G 0T3, ph. 945-7848. A copy of the* ***Teacher's Guide to WaterWorks: A Video on Sustainable Development,*** *was forwarded to all schools teaching Grade 7 in November 1992.*

Introductory Activities:

- Using the **Teacher's Guide to WaterWorks**, introduce water as one of earth's major resources for humans.

- Introduce the concept of sustainable development to the class, view the video **WaterWorks** and discuss aspects of the video. *Consider questions such as the following:*

  - Why is water such an important resource?
  - What are the sources of water?
  - How is water being polluted? . . . wasted?
  - How can water pollution be reduced? . . . waste reduced?
  - What decisions should be made about using water? *Consider local issues and global issues.*
  - Why is water considered a limited resource if there is so much water in the world?
  - Is water a renewable resource? Why?

Developmental Activities:

- Divide students into small groups and have them list some of the observations that they made about sustainable development, while viewing the video **WaterWorks**. Have each group develop 2 or 3 conclusions about sustainable development as a result of viewing and discussing the video. Have them share their findings with the class.

- Using the **Teacher's Guide to WaterWorks**, have students complete Lesson #1 Activity sheet on the Water Cycle (page 8). Discuss the importance of the water cycle.

- Have students complete Lesson #2, "Water Use Choices" — preferences and trade-offs, (pages 9-11). This activity will take some time to complete.

  - Ask the class to list possible uses of water not identified in the lesson. *Consider industrial uses, recreational uses, institutional uses, etc.*

  - What kinds of decisions need to be considered when using water?

Concluding Activities:

- The **Teacher's Guide to WaterWorks**, Lesson #5, (page 21) lists the principles of Sustainable Development outlined by the Manitoba Round Table on Environment and Economy.

  - Have students, in small groups, work through Example #1 and/or Example #2

- Have students examine the water supply of their own community. This might be done through interviews with government officials, or through inviting someone to class. What decisions need to be made to keep a sustainable water supply for future generations?

- Lesson #4 provides another option for Riverbank clean-up which you may want to consider.

GRADE 7 SCIENCE

UNIT 6: ROCKS, MINERALS AND SOIL

SUBTOPIC - SOIL AND SOIL MANAGEMENT

Overview: Students examine how essential soil is for growing plants and for supplying a large proportion of the food consumed by human beings. They explore the importance of making decisions about soil and its use, that are sustainable for future generations.

Focus Questions:

- **How is soil formed? Why is it such an essential and important resource for the well-being of humans?**

- **How is soil a renewable resource? How can it be destroyed? How has it been destroyed?**

- **What decisions can humans make about soil and its use which wil keep it as a sustainable resource for future generations?**

Objectives: The students should be able to meet the following knowledge, thinking and research, attitude and value, and social participation objectives to

- identify the layers in a soil profile and briefly describe the components and significance of each layer.
- recognize the value of soil and that it is a renewable resource which can be destroyed through misuse.
- discuss the relationship of climate and vegetation on soil development.
- research and discuss how decisions made by human beings about soil and how it is used can make it either less sustainable or more sustainable for future generations.

Suggested Teaching Strategies and Learning Activities

Note: *Two resources may be helpful for developing this topic:* ***The Living Soil: Land Use and Society and The Living Soil: A Renewable Resource*** *with an accompanying Teacher's Guide. (Weigl Educational Publishers Limited, 2114 College Avenue, Regina, Saskatchewan, S4P 1C5) c. 1991. Available through the Manitoba Text Book Bureau.*

Introductory Activity:

- Have students, in groups of two, identify as many words as they are able, that have some relationship to soil and begin with different letters of the alphabet. Three points are awarded for the first word beginning with a different letter of the alphabet and 1 point for each additional word beginning with the same letter. (This activity could be timed)

a.	3 pts	1 pt	1 pt
b.			
c.			
etc.			
z.			

Total points: _____

  - Have groups share selected words with the class and explain the relationship. *Discuss.*

- Have students examine a soil profile and answer questions similar to the following:

  - What is soil made of?
  - How is soil formed? How is it renewed?
  - Is soil alive? How do you know?
  - How does soil store and release nutrients?
  - Why is soil a resource? . . . a renewable resource?
  - What is the importance of water to soil?

Developmental Activities:

- Have students examine soil in terms of its value. *Consider foods dependent on soil, dependence that life has on soil, uses of soil, dependence of food chains on soil, dependence of plants on soil.*

  - What value do students give to soil? Why?

- Divide students into small research teams of 3 to 4 students and have them research land-use in their community. The following guidelines may be helpful:

  - What type of economic and environmental land-use conflicts are evident in your community?

- Where is there evidence that economic land-use is integrated with the environment in such a way that both the economic land-use and the environment will be sustained for the well-being of future generations.

- Where is there evidence that the economic land-use is not integrated with environment in such a way that is sustainable for the well-being of future generations.

- What conclusions can you make about land-use in your community?

Concluding Activities:

- Based on their own observations, on research and on interviews, have individual groups of students create a scenario of what they see for future generations, if there is a continuation of similar economic decisions in the future, as in the past, with reference to soil use, land use and/or water on the prairies, or on other parts of the world.

  - Have groups make lists of sustainable development decisions, with reference to soil and land use, that would allow the well-being of people for future generations. (Share these with the class.)

  - Have students develop a list of recommendations which could be presented to their local council.

GRADE 8 SOCIAL STUDIES

UNIT IV: LIFE IN THE MODERN WORLD

TOPIC 3 - TODAY'S WORLD ISSUES

Overview: Students examine the interdependence and interrelatedness of the economy, the environment and the well-being of society in the context of countries in today's world.

Focusing Questions:

- **What is meant by descriptors such as: developed country?...developing country?...least developed country?** *Consider examples of countries in each descriptor and outline some similarities and differences.*

- **What is the meaning of development?...of sustainable development? What are some problems associated with development?...with implementing sustainable development?**

- **How are contemporary countries of the world interdependent and interrelated? What are the implications of economic and environmental decisions, for the well-being of future generations?**

Objectives: Students should be able to develop the following knowledge, thinking and research, attitude and value, and social participation objectives to

- give appropriate definitions of terms such as: developed country; developing country; least developed country; development; sustainable development.
- shade, on a world map, those countries generally described as developed countries, developing countries, and least developed countries.
- research and describe similarities and differences in developed, developing and least developed countries with reference to their economies, their environments and the general well-being of the people.
- discuss how the countries — developed, developing, and least developed — are interdependent and interrelated, and what are the implications of the interdependence and interrelatedness are with reference to decisions made about the economies, the environments and the well-being of people.

Suggested Teaching Strategies and Learning Activities

Introductory Activities:

- Using a variety of resources, have students develop definitions of the following: developed country, developing country, least developed country, development and sustainable development.

  - Discuss students' definitions in class and develop appropriate definitions for each of the terms.

Developmental Activities:

- Divide the class into three groups, each representing one of the following descriptors developed countries, developing countries, least developed countries.

  - Have each group choose a country from their descriptor, research and develop a report on that country in terms of topics such as: the economy; the general state of the environment, and the general health and well-being of the people. *Consider various sectors - transportation, food/agriculture, manufacturing of goods, construction etc.*

  - Have students evaluate the **decisions** that have been made (in the country that they have chosen to research) which they consider are:

    - sustainable for future generations
    - not really sustainable

  - Have students prepare a report card mark A, B, C, or D for the country they have researched, based on how will they think that country is making sustainable development decisions.

    A - decisions about the economy, the environment and the well-being of people are quite sustainable for future generations.
    D - decisions are not sustainable for future generations.
    B & C are in between the above.

  - Have students comment on why they gave the country the mark that they did.

  - Have groups prepare a list of how contemporary countries of the world are interdependent and interrelated. What are the implications of this interdependence for developed, developing and least developed countries?

Concluding Activities:

- Have the same groups of students prepare a report card mark for their own community and justify the mark that they have given.

  - Are there differences/similarities among the three groups? Why?

- As a class, develop recommendations that would make their community more sustainable for future generations.

GRADE 8 SCIENCE

UNIT 2: ENVIRONMENTAL INTERDEPENDENDCY AND INTERACTION AMONG ORGANISMS

TOPIC - PLANTS AND THE TOTAL ENVIRONMENT

Overview: Students examine how plants are essential to the well-being of society, the economy, and the environment. They will explore how the sun's energy is the only resource added to existing resources of Planet Earth and that through photosynthesis, plants use this energy to sustain life on earth.

Focusing Questions:

- **Why are plants important? How does the energy of the sun create new plants? What is significant about this process?**

- **What is the importance and significance of the natural cycles occurring on the Planet?** *Consider the water cycle, the CO_2/O_2 cycle, the nitrogen cycle as natural recycling and renewing processes of the ecosystem and the importance that these processes not be disrupted in an unsustainable way.*

- **What economic and environmental decisions have human beings made which have created an imbalance in the Earth's ecosystem? What decisions should be made to re-establish a balance within the Earth's ecosystem?**

Objectives: Students should be able to meet the following knowledge, thinking and research, attitude and value, and social participation objectives.

- list the importance of plants for human beings.
- describe how the energy of the sun creates new plants.
- explain the significance of natural cycles such as photosynthesis, the water cycle, the CO_2/O_2 cycle, and the nitrogen cycle, to the continuation of life.
- research how the changes humans have initiated (economic and other) in the earth's environment are creating an imbalance in the ecosystem.
- outline decisions which should be made to re-establish a balance within the earth's ecosystem.
- discuss the value that plants have and assess their own habits and attitudes towards plants and animals in the context of a complete ecosystem.
- discuss the meaning of "finite" resources and the significance for humans.

Suggested Teaching Strategies and Learning Activities

Introductory Activities

- Have students in groups of two list as many uses of plants as they can.

- Have students research, diagram, and outline the significance of natural cycles such as photosynthesis, water cycle, CO_2/O_2 cycle, and the nitrogen cycle.

  - What is the role of the sun in this process?
  - How can human beings disrupt this process?

Developmental Activities

- Have one group of students research and comment on human economic decisions that have been made where plants have not been able to be sustained because human economic activities were not in balance with the natural recycling processes of nature. *Consider deforestation and logging, farming in marginal areas, poor farming practices, misuse of chemicals, degradation of the environment through industrial wasted, acid rain, etc.*

- Have a second group of students research and comment on human decisions that have been made where plants are being sustained and where human activity is in balance with the natural processes of nature. *Consider reforestation, positive farming practices, proper use of chemicals, enhancing the environment, careful management of industrial waste, etc.*

  - Have students discuss the implications of each of the above decisions.

Concluding Activities:

- Review for students that the concept of sustainable development is a process of decision-making where the economy, the environment and the well being of people, are integrated and balanced in such a way that future generations can be assured of a reasonable quality of life.

  - Have students research and respond to how well they think the concept of sustainable development has been applied, or is being applied to one of the following, and the changes they would like to recommend.

    - tropical rainforest
    - Atlantic cod fisheries
    - oil exploration in the Arctic
    - large oceanic fishing factories
    - your community
    - a decision in your province/country

- a provincial/national park
- an industry
- your school
- your home
- irrigation projects
- other

PART III: CONCLUDING ACTIVITY FOR GRADES 5-8

Topic: Round Table on Environment and Economy

Focus: To experience the decision-making process on a Round Table.

Overview: This activity is intended to create a greater awareness and understanding that the sustainable development decision making process has a role to play in the community, school and home, and to provide students with an opportunity to introduce the concept into their schools and communities.

Focusing Question:

- **What decisions would make your school/community more sustainable for present and future generations, in the context of the definition and principles of sustainable development?**

Objectives:

- To have students experience sitting on a Round Table Sustainable Development Committee, discussing and making decisions about the environment, economy and well-being of the people of their school or community for the present and future generations, and presenting their recommendations to appropriate officials.

Suggested Teaching Strategies and Learning Activities

- Introduce students to the legend of King Arthur and the Knights of the Round Table. Discuss the use of the Round Table as a problem-solving mechanism.

  - Is the concept of a Round Table Committee on Environment and Economy appropriate for discussing issues of the 21st century?

  - What is the purpose of the National Round Table on Environment and Economy?...the provincial Round Table?...local community Round Tables?

  - Who is represented on the National Round Table on Environment and Economy?...on the Manitoba Round Table?...on most community Round Tables?

  - Why is the objective of the Round Tables to reach decisions by consensus, rather than by voting?

- How is the world of today different from that of King Arthur and the Knights of the Round Table?

- Have students discuss establishing a Round Table on sustainable development. *Consider a Round Table which focuses on one of the following: classroom, school, community.*

  - Divide the class into groups and have each group make lists of:

    - Who should sit on the Round Table?
    - Issues the Round Table should consider. Why?
    - Actions required to bring the Round Table into existence. *Consider publicity, information gathering, promotion.*
    - People, attitudes, etc - Which may present barriers to creation or functioning of a Round Table?

- Have the students do the organizing and planning necessary to hold the first Round Table meeting on sustainable development. *Consider (i) preparing an agenda - explanation of what sustainable development is and issues which should be discussed; (ii) representation on the Round Table from economic interests, environmental interests and the health of the society interests; (iii) having some people play the role of the audience, prepared to participate by asking questions from a variety of perspectives.*

  - Hold a Round Table Committee meeting on sustainable development, in the context of the preparation. *Consider having a chairperson, and recording secretary.*

  - After the meeting is over, discuss the recommendations and decide to whom the recommendations should be presented to and how this should be done.

ENDNOTES

1. Towards Institutional Change in the Manitoba Public Sector, (Manitoba Round Table on Environment and Economy), p. 2.

2. Connect - the UNESCO-UNEP Environmental Education Newsletter, (vol. IX II, No. 3, September 1992).

3. Ibid

4. Teacher's Guide to WaterWorks, (The International Coalition for Land/Water Stewardship in the Red River Basin) c. 1992.

5. Connect - the UNESCO-UNEP Environmental Education Newsletter, (vol. XV II, No. 3, September 1992, p. 2).

6. Towards Institutional Change in the Manitoba Public Sector, (Manitoba Round Table on Environment and Economy), p.3.

7. Ibid p. 4

8. Towards A Sustainable Development Strategy For Manitobans, (Manitoba Round Table on Environment and Economy), p. 6. The illustrations 2-10 are taken from the same source.

SECTION FOUR

ANNOTATED SUSTAINABLE DEVELOPMENT RESOURCE LIST

There are many resources available on issues related to the environment and environment education. This annotated resource list, however, will focus on those resources which examine the concept of sustainable development, i.e., the integration and balance of the economy, environment, and well-being of society. This list will not be exhaustive, because new resources on this concept are being developed continuously. Teachers should continue to add new resources to the list. At the back of this resource list are the names and addresses from where each resource is available.

The resource list is organized under the following headings:

A. Magazines/Newsletters
B. Books/Publications
C. Atlases
D. Teaching Guides/Projects/Musical
E. Videos
F. Organizations
G. Bibliographies and Lists of Resources

A. MAGAZINES/NEWSLETTERS

- **Under the Same Sun** *(Middle Years) (Free Subscription, published 3 times a year.)*
  Full-colour student magazine, explores different regions of the world through the eyes of the people living there. There are also special issues on specific themes. Available from #6

- **Somewhere Today** *(Early/Middle Years) (Free subscription, published 3 times a year.)*
  Similar to **Under the Same Sun** but for a younger audience. Available from #6

- **Green Teacher** *(Middle/Senior Years) (Published five times during the school year.)*
  Contains a variety of articles, activities, book reviews, environmental resource lists etc. Attempts to cover all parts of Canada. Available from #10

- **UNEP News** *(Upper Middle and Senior Years) (Free subscription six issues a year.)*
  Features international environmental issues. Available from #50

- **Canada and the World** *(Upper Middle/Senior Years)*
  Includes a variety of articles on the economy, environment and health of society in the

context of Canada as well as other countries. Available from #3

- Connect: UNESCO-UNEP Environmental Newsletter *(Senior Years)* Free.
  A newsletter focusing on UNESCO's and UNEP's involvement on sustainable development. Available from #50 and #46

- **Households and the Environment 1991** *(Senior Years) (Published by Statistics Canada)* Available from #39

- **Agenda: For Sustainable Development in Manitoba** *(Senior Years/Teacher) (Published by the Sustainable Development Coordination Unit.)* **Agenda** covers a wide range of sustainable development activities in Manitoba. Available from #44

- **MSSTA Journal** *(Teachers) (Published by the Manitoba Social Studies Teacher's Association.)*
  Include a variety of social studies topics — the spring (1993) edition focuses on sustainable development. Available from #27

B. BOOKS/PUBLICATIONS

- **Project Learning Tree** *(Early/Middle Years)*
  These materials are presented in the form of learning activities which seek to build an understanding that the earth's resources are limited and that we must develop new attitudes toward our stewardship of these resources. Available from #21

- **Be A Friend of the Environment** *(Early/Middle Years)*
  An "environmental education resource for teachers, which reflects Manitoba's sustainable development philosophy and highlights key elements of the WRAP (Waste Reduction and Prevention) strategy."
  The materials include an introduction to sustainable development and hands-on activities to teach children the basic concepts of waste management, waste reduction, and recycling. Available from #20

- **The Canadian Junior Green Guide** *(Early/Middle Years)*
  This book will help students understand what some of the most serious environmental issues are - and show what can be done to help. Available from #34

- **50 Simple Things Kids Can Do To Save the Earth** *(Early/Middle Years) (Published by McIntyre Media Ltd.)*
  The book details 50 simple, specific ways that kids can save the earth's resources. There is also a video available. Available from #16

- **Take Action** *(Upper Early/Middle Years) (Published by World Wildlife Fund ISBN 0-921103-43-3)*
  This publication uses experiments and activities children can do themselves to learn about the science of conservation. Projects are drawn from all over the world and place activities within a broad environmental context.
  The activities chosen lend themselves to the sustainable development decision-making model. Some adaptation would be required. Available from #36

- **The Green Classroom** *(Early/Middle/Senior Years) (ISBN 0-921217-60-91)*
  Explores ways students can become part of the solution to our environmental problems. This publication provides background information on environmental issues and suggests 101 practical activities students of all ages can undertake to tackle these issues.
  Available from #33

- **Families of the World** *(Later Middle Years)*
  A series of books with user's guides and booklets of activity sheets. Explores material resources, lifestyles, work, etc. Available from #6

- **Caring for the Earth:** A Learners Guide to Sustainable Living *(Middle/Senior Years)*
  Presents over 100 specific actions organized around 9 principles of a sustainable society. Available from #50

- **Planet Under Stress** *(Middle/Senior Years) (C. Mungall & D.J. McLaren ISBN 0-19-540731-8)*
  This book is a reference for exploration of the global changes taking place and of the responses necessary for the human species to survive these changes. The purpose of the book was to bring the "concerns of the International Geosphere-Biosphere Program (of the Royal Society of Canada) to the general public." Available from #31

- **The Canadian Green Consumer Guide** *(Middle/Senior Years)* ISBN 0-7710-7147-7
  Includes a Teacher's Resource book (same name) ISBN 0-88751-027-2
  Contains a wealth of information on environmental issues as these grow out of our daily life. It is aimed at the adult market, but it certainly could be used in middle and senor years classes. Clothing, cleaners, food and drink, the home, the workplace-consumption in every part of our lives is examined by this publication, and alternatives to current practices are suggested. Available from #34

- **The State of the Environment: Report For Manitoba** *(Middle/Senior Years) (Published annually — 1991 edition ISBN 0-7711-1877-X)*
  Contains detailed environmental information about Manitoba. A chapter on sustainable development presents a cross-section of projects showing how some Manitobans are beginning to implement sustainable development. Available from #38

- **The Living Soil Series** *(Upper Middle/Senior Years) (Published by Weigl Publishers through funding from PFRA in consultation with the Department of Education and Agriculture of the three prairie provinces.)*
  - A Renewable Resource (Science Module)
  - Land Use and Society (Social Studies Module)
  - The Living Soil Teacher Guide

  Appropriate for grade 7 social studies and science courses but is also suitable for higher levels where topics of soil are taught. Available from #24

- **Prairie Conservation Action Plan: 1989-1994** *(Upper Middle/Senior Years) (Published by World Wildlife Fund of Canada)* It provides a brief overview of threats to prairie species and ecosystems — why we must conserve native species and habitats, and what is being done. Specific actions are outlined to achieve the goals described in this plan. Available from #36

- **Caretakers of the World: Course on Sustainable Living** *(Senior Years) (Fort Whyte Global Education Centre)*
  This course seeks "to make the connections between everyday living and the worldwide environmental changes which challenge the student generation." Available from #42

- **1992-93 World Resources Guide and Teacher's Guide** *(Senior Years) (Produced by the World Resources Institute)* It is a comprehensive guide to all dimensions of sustainable development. This resource provides students with the opportunity to explore global issues using the same information available to policy makers around the world. Available from #51

- **Our Common Future: The World Commission on Environment and Development** *(Senior Years) (Published by Oxford University Press)*
  The World Commission on Environment and Development was asked to formulate " a global agenda for change. It was an urgent call by the General Assembly of the United Nations...to propose long-term environmental strategies for achieving sustainable development...to recommend ways concern for the environment may be translated into greater co-operation...to help define shared problem of protecting and enhancing the environment, etc. The book gives a definition of sustainable development and outlines the status of the environment in the late 1980's. Available from #31

- **Signs of Hope: Working Towards Our Common Future**. *(Senior Years) (Originates from The Centre For Our Common Future)* The book primarily examines the impact of Our Common Future and tracks the changes in the world regarding environment and development issues since 1987. Available from #31

- **Our Country, The Planet: Forging a Partnership for Survival** *(Senior Years)*
  With **Our Country, The Planet**, the author Shridrath Rampha gives the world a wide ranging discussion of the global environment crisis that accounts for the positions and

perceptions of both developed and developing nations. Ramphal argues that global problems require global solutions. To see the planet as our country is the first step to survival. Available from #13

- **Northern Manitoba: A Benchmark Report** *(Senior Years) (Published by the Northern Manitoba Economic Development Commission December 1992)*
  This report focuses on the state of the Northern Manitoba economy. It is intended as a benchmark against which change can be measured in the future as the Commission's Sustainable Economic Development Plan is implemented. Available from #29

- **Towards a Sustainable Development Strategy for Manitoba** *(Senior Years/Teacher) (Published by Manitoba Round Table on Environment & Economy)*
  The contents include the following: Why sustainable development? A vision for Manitoba, principles of sustainable development, fundamental guidelines and component strategies. Available from #44

- **Towards Institutional Change in the Manitoba Public Sector** *(Senior Years/Teacher) (Published by Manitoba Round Table on Environment & Economy)*
  This report is Manitoba Round Table's guidelines to Manitobans on sustainable development in the public sector. Available from #44

- **The Common Heritage Programme** *(Senior Years) (The Common Heritage Programme, a Canadian not-for-profit organization, has developed global and environmental education materials for many years. The materials are published under the title of E.D.I.T. - Environmental and Development Issues and Trends).*

  The following titles are available:

  E.D.I.T. #20 Cities: The Urbanization of the Global Community
  E.D.I.T. #19 Earth Summit in Review
  E.D.I.T. #18 Earth Summit: Setting the Global Agenda for the 21st Century
  E.D.I.T. #17 The World's Wetlands
  E.D.I.T. #16 The Question of Climate Change
  E.D.I.T. #15 The Drug Trade
  E.D.I.T. #14 Freshwater: Issues of Concern and Conservation
  E.D.I.T. #13 International Relations: The Search for Law and Peace in the Global Village
  E.D.I.T. #12 The Future of Work
  E.D.I.T. #11 Biotechnology: The Search for Wisdom
  E.D.I.T. #10 Environment First: The Idea of Sustainable Development
  E.D.I.T. # 9 Wilderness and Wildlife: Issues of Conservation and Preservation
  E.D.I.T. # 8 Energy and Development: Planning for Growth and Conservation
  E.D.I.T. # 7 Terrorism: The New Warfare
  E.D.I.T. # 6 Today's Pollution Dilemma: Industry and Environment

E.D.I.T. # 5 The New Migrations of People: Balancing Control and Compassion
E.D.I.T. # 4 The World's Resources: Questions of Ownership and Management
E.D.I.T. # 3 Indigenous Peoples: Cultural Survival and Adaptation
E.D.I.T. # 2 Harvest of Sand: Desertification and Land Degradation
E.D.I.T. # 1 The Vanishing Forests

The E.D.I.T. series is edited by teachers, ready for classroom use — contain documents, case studies, charts, maps, black and white photographs, questions for analysis and discussion, hard to find facts. The format of the series focuses on skills of inquiry, research, and decision-making for all students. Available from #41

- **Caring for the Earth: A Strategy for Sustainable Living** *(General)* ISBN 2-8317-0074-4 *(Published by the World Conservation Union, The United Nations Environment Programme, and the World Wide Fund for Nature)*
  Sets out a broad and explicit world strategy for the changes needed to build a sustainable society. Detailed resources on sustainable development theories and applications. Available from #49

- **Environmental Citizenship Programme** *(General) (Government of Canada)*
  Introduces sustainable development within the context of environmental stewardship. Available from #7

- **Human Development Report 1992** *(Senior Years/Teachers) (Published yearly for the UN Development Programme since 1990)*
  The report takes a look at poor nations and poor people in a global perspective. It looks at how immigration policies, trade barriers, and international debt contribute to the continuing disparily between rich and poor nations. Available from #47

- **Biosphere 2000** *(Teacher Reference) (Published by Harper Collins College Publishers c. 1993)*
  This is a reference book of over 600 pages on almost every topic of the biosphere — almost an "encyclopedia type" resource for teachers. Available from #11

- **The Popcorn Report: Faith Popcorn on the Future of Your Company, Your World, Your Life** *(Teacher's Reference) (Published by Harper Business ISBN 0-88730-594-6)*
  This is a 250 page paperback on what Americans will buy, where they will work, and what they will think in the next decade. The **Popcorn Report** offers a flashback: lessons for life; "you have to see the future to deal with the present" and she offers ten trends that will impact the future and analyzes these. "The future bears a great resemblance to the past only more so." As is usually the case — much of this can be applied to Canadians. Available from #11

C. ATLASES

- **Environmental Atlas for Children** *(Middle/Senior Years)*
  (Published by UNICF and Rand McNally)
  The UNICEF perspective is that protection of the child's environment begins in the child's own family and community. "Protecting the environment is actually like a global job of caring for your home". The atlas is divided into three main areas:

  — Earth as a Balanced System
  — Upsetting the Balance
  — Restoring the Balance in the Earth's Regions

  Available from #24

- **Atlas of the Environment** *(Upper Middle/Senior Years)*
  (Published by Prentice Hall ISBN 0-13-050436-X)
  This atlas presents basic facts about the natural and human environments and what is happening to them. It contains a range of information — it describes the state of world's forests, wetlands, deserts, croplands, mountains, rivers, and seas, and details the threats to them. It examines pollution and wildlife, energy and food production,health and education, development and disasters. It presents solutions as well as problems.
  Available from #24

- **Atlas of the Environment** *(Upper Middle/Senior Years)*
  (Published by Nelson Canada ISBN 0-17-602677-0)
  One important message of this atlas is that, in environmental terms as well as in economic terms, it is the developing world that suffers most. Developing countries owe the developed countries money — and they are often forced to damage their environment in trying to pay the money back. The atlas also gives the message that environmental problems are linked to one another and that we all have an important role to play in safeguarding the planet's future. Available from #24

- **Gaia: An Atlas of Planet Management** *(Senior Years)*
  (Published by Anchor Books, Anchor Press/Doubleday & Company — General editor Dr. Norman Myers. ISBN 0-385-19072-7)
  It organizes the mass of available environmental data, statistical predictions, and often conflicting opinions and solutions into a simple coherent structure. It is divided into seven sections: Land, Ocean, Elements, Evolution, Humankind, Civilization, and Management; each of these is considered from three perspectives:

  — potential resources
  — crises
  — management alternatives

  This structure enables students to examine any critical area of concern and to weigh — first what it has to offer; second, where, how and why things are obviously going wrong;

and third, how humans might set about putting things right, by applying a range of alternative strategies. Available from #24

D. TEACHING GUIDES/PROJECTS/MUSICAL

- **Our Environment Needs You** *(Early/Lower Middle Years) (Written and published by two St. James-Assiniboia School Division #2 teachers, Gail Surman and Dianne Soltess)*
  This is an integrated activity-based book on activities for classroom teachers K-6. The activities, related to sustainable development, are explored through language arts, social studies, science, mathematics, health, art, and music. Available from #8

- **Active Learning: Go For Green** *(Early/Middle/Senior Years) (Published by the Government of Canada and Fitness and Amateur Sport)*
  This is a national project with an initiative to support the introduction of the concept of active learning. It is for individual Canadians who want to do something for the environment. Available from #1

- **Project Wild: Activity Guide** *(Early/Senior Years)*
  This is an interdisciplinary, supplementary environmental, and conservation education programme for educators of kindergarten through high school age students. Available from #36

- **A Developing World** *(Middle Years) (Free)*
  Introduces sustainable development within the context of environmental stewardship. Available from #5

- **To Save the Planet** *(Middle/Senior Years) (Published by CenterStage Productions)*
  A musical fable about the global environment and what we can do to help. Music, lyrics, and text by Tobin J. Mueller. This timely musical drama follows an environmental scientist and his dedicated daughter around the globe as they grapple with the world's worse ecological disasters.
  As the story unfolds, more and more of the Earth's creatures are lost to extinction. But it isn't until the **children** disappear that the people really take notice. The scientist searches far and wide, but finding the children is only part of his problem. Once found, he must convince them to return. In a moving speech, he explains how their generation will be the one making the most important environmental decisions. They must come back and be part of the solution. Together, they return **To Save the Planet**. (8 songs, 55 minutes) Available from #4

- **A Case For the Environment** *(Senior Years) (Produced by P.J. Spratt and Associates)*
  By working through the simulations, students will learn about how they might view a career in industry/business. In addition students will learn about the environment and

the initiatives they may take in this area. The concept of sustainable development is explored. Available from #32

- **Global Change Game** *(Senior Years)*
  An interesting simulation for students studying development issues. Available from #9

E. VIDEOS

- **WaterWorks** *(Upper Middle Years) (Produced by Turner-McCulley Productions in Winnipeg)*
  WaterWorks is a 28 minute video on sustainable development using the topic of water. It is produced in Manitoba and is suitable for the Grade 7 social studies and science courses. A Teacher's Guide was sent to each school teaching Grade 7 in the fall of 1992, by the Curriculum Services Branch. Available from #19

- **CBC-TV News In Review** *(Upper Middle/Senior Years)*
  There are several stories on concepts related to Sustainable Development

November 1990	**"The UN Children's Summit"**
December 1990	**"The Clean Air Act"**
March 1991	**"Canada's Recession"**
March 1991	**"The Bay Stops Selling Fur"**
April 1991	**"Free Trade: Canada, The United States, and Mexico**
September 1991	**"Power Struggle at James Bay"**
November 1991	**"Farmers Revolt"**
February 1992	**"Hard Times, Disappearing Jobs"**
March 1992	**"Disappearing Ozone: Danger in the Sun?"**
April 1992	**"Beleaguered Newfoundland"**
Special 1992	**"Canada Now: A Diverse Landscape"**
	"Urban and Rural Ways of Life"
	"Nurturing the Land"
	"Giving Something Back"
September 1992	**"Canada, the United States, and Mexico: A New Trade Deal"**
September 1992	**"Last Shift: The Westray Mine Disaster"**

  Available from #19

  There is a Teacher's Guide available for each month's CBC-TV News in Review. Available from #24

- See the bibliographies of other organizations for additional listings of video resources.

F. ORGANIZATIONS

The following organizations are involved with assisting schools with implementing sustainable development and other topics related to the environment. To contact the organizations see the addresses at the end of the resource list.

• Agriculture in the Classroom	Contact #2
• Forestry Canada	Contact #45
• Global Change Game	Contact #9
• International Institute for Sustainable Development	Contact #13
• Living Prairie Mu: :um	Contact #15
• Local United Nati: ns Association	Contact #47
• Manitoba Forestry Association	Contact #21
• Manitoba Hydro	Contact #22
• Manitoba Museum of Man and Nature	Contact #23
• Manitoba Trapper's Association	Contact #25
• Oak Hammock Marsh	Contact #30
• Project Wild	Contact #36
• SEEDS Foundation	Contact #37
• The Fort Whyte Centre	Contact #42
• The Marquis Project	Contact #43
• The Sustainable Development Coordination Unit	Contact #44
• Tree Plan Canada	Contact #45

G. BIBLIOGRAPHIES AND LIST OF RESOURCES

The following organizations have developed bibliographies or a list of resources on the concept of sustainable development.

• Manitoba Education and Training Library	Available from #19
• International Institute for Sustainable Development (Probably the most comprehensive list)	Available from #13
• Sustainable Development Coordination Unit	Available from #44
• Learning For a Sustainable Future	Available from #14
• United Nations Association (Manitoba Branch)	Available from #47
• Fort Whyte Centre	Available from #42
• Manitoba Council for International Cooperation	Available from #18
• The Centre For Our Common Future	Available from #40
• Earthwatch (UNEP)	Available from #50
• International Development Research Centre	Available from #12
• United Nations Conference on Environment and Development (UNCED)	Available from #48
• CIDA	Available from #5

ADDRESSES OF RESOURCES

The number in front of each name and address is consistent with "Available from number" or "Contact number" listed after each resource in the annotated resource list.

#1. **Active Living: Go For Green**, 1600 James Haismith Drive, Suite 312, Gloucester, Ontario, K1B 5N4, Telephone Toll Free 1-800-361-2756

#2. **Agriculture In The Classroom**, Suite 18 Waverley Square, 5 Scurfield Boulevard, Winnipeg, Manitoba, R3Y 1G3, Telephone 488-4888

#3. **Canada And The World**, Box 7004, Oakville, Ontario, L6J 6L5

#4. **CenterStage Productions**, 1289 Bartlein Court, Menasha, WI, 54952, Teacher Hotline Telephone 1-800-553-4058

#5. **CIDA** — Publications, Public Inquiries, 200 Promenade du Portage, Hull, Quebec, K1A 0G4 Telephone (819) 997-6100

#6. **CIDA** — Youth Editions Group, P.O. Box 1310, Postal Station B, Hull, Quebec, J8X 9Z9

#7. **Environment Canada**, Communications Office, Terrasses de la Chaudiere, 10 Wellington Street, Hull, Quebec, K1A 0H3 Telephone 1-800-668-6767

#8. **Gail Surman**, 206 Carroll Rd., Winnipeg, Manitoba, R3K 1H6

#9. **Global Change Game**, 459 Churchill Drive, Winnipeg, Manitoba, R3L 1W3

#10. **Green Teacher**, 95 Robert Street, Toronto, Ontario, M5S 2K5

#11. **Harper & Collins Books**, 1995 Markham Road, Scarborough, Ontario, M1B 5M8

#12. **International Development Research Centre**, 250 Albert Street, P.O. Box 8500, Ottawa, Ontario, K1G 3H9, Telephone (613) 236-6163, Fax (613) 238-7230

#13. **International Institute for Sustainable Development (IISD)**, 161 Portage Avenue East, 6th Floor, Winnipeg, Manitoba, R3B 0Y4, Telephone (204) 958-7700, Fax (204) 958-7710

#14. **Learning For A Sustainable Future**, 255 Smyth Road, Ottawa, Ontario, K1H 8M7, Telephone (613) 526-3280 Fax (613) 526-4857

#15. **Living Prairie Museum**, 2795 Ness Avenue, Winnipeg, Manitoba R3J 3S4, Telephone 832-0167

#16. **McIntyre Media Limited**, 30 Kelfield Street, Rexdale, Ontario, M9W 5A2, Telephone 1-800-565-3036

#17. **Manitoba Agriculture**, Publications, 805-401 York Avenue, Winnipeg, Manitoba, R3C 0P8 Telephone (204) 945-3846

#18. **Manitoba Council For International Cooperation**, 60 Maryland Street, Winnipeg, Manitoba, R3G 1K7, Telephone (204) 786-2106, Fax 772-7179

#19. **Manitoba Education and Training Library**, Instructional Resources Branch, Video Dubbing Services, Box 4, Main Floor, 1181 Portage Avenue, Winnipeg, Manitoba, R3G 0T3 Telephone 945-5371

#20. **Manitoba Environment**, Building 3, 139 Tuxedo Avenue, Winnipeg, Manitoba, R3N 0H6, Telephone (204) 945-8443

#21. **Manitoba Forestry Association**, 900 Corydon Avenue, Winnipeg, Manitoba, R3M 0Y4, Telephone (204) 453-3182

#22. **Manitoba Hydro**, Sustainable Development Coordinator, 820 Taylor Avenue, Winnipeg, Manitoba, R3M 3T1, Telephone (204) 474-3311

#23. **Manitoba Museum of Man and Nature**, 190 Rupert Avenue, Winnipeg, Manitoba, R3B 0N2, Telephone 956-2830, Fax 942-3679,

#24. **Manitoba Text Book Bureau**, 277 Hutchings Street, Winnipeg, Manitoba, R2X 2R4, Telephone (204) 945-8940 Fax 948-2189

#25. **Manitoba Trapper's Association**, General Delivery, Lac du Bonnet, Manitoba, R0E 1A0, Telephone (204) 345-9107

#26. **Media Program**, Asia Pacific Foundation of Canada, 666-999 Canada Place, Vancouver, B.C., V6C 3E1, Telephone (604) 684-5986, Fax (604) 681-1370

#27. **MSSTA**, Manitoba Teachers' Society, 191 Harcourt Street, Winnipeg, Manitoba, R3J 3H2, Telephone (204) 888-7961

#28. **National Round Table On Economy and Environment**, 15th Floor, 1 Nicholas Street, Ottawa, Ontario, K1N 7B7, Telephone (613) 992-7189

#29. **Northern Manitoba Economic Development Commission**, Suite 304-83 Churchill

Drive, Thompson, Manitoba, R8N 1L6, Telephone (204) 677-6502, Fax 677-6503

#30. **Oak Hammock Marsh Interpretive Centre**, Stonewall P.O. 1160, Oak Hammock Marsh, Manitoba, R0C 2Z0, Telephone (204) 467-3299 or 467-3000

#31. **Oxford University Press**, 70 Wynford Drive, Don Mills, Ontario, M3C 1J9 Telephone (416) 441-2941

#32. **P. J. Spratt & Associates**, 3190 Ridgeway Drive, Unit 35, Mississauga, Ontario, L5L 5S8, Telephone (416) 607-0200, Fax (416) 607-0191

#33. **Pembroke Publishers Limited**, 528 Hood Road, Markham, Ontario, L3R 3K9

#34. **Pippin Publishing Ltd.**, 380 Esna Park Drive, Markham, Ontario, L3R 1H5, Telephone 1-800-567-6591

#35. **Prairie Farm Rehabilitation Administration (PFRA)**, 603 - CIBC Tower, 1800 Hamilton Street, Regina, Saskatchewan, S4P 4L2, Telephone (306) 780-6271 Fax (306) 780-8229

#36. **Project Wild**, Box 14, 1495 St. James Street, Winnipeg, Manitoba, R3H 0W9, Telephone (204) 945-7763

#37. **Seeds Foundation**, Suite 440, 10169-104 Street, Edmonton, Alberta, T5J 1A5, Telephone (403) 424-0971 Fax (403) 424-2444

#38. **SOE Reporting**, Manitoba Environment, Building 2, 139 Tuxedo Avenue, Winnipeg, Manitoba, R3N 0H6

#39. **Statistics Canada** — Publications, Ottawa, Ontario, K1A 0T6, Telephone 1-800-267-6677

#40. **The Centre For Our Common Future**, Polais Wilson, 52 rue des Paquis, 1201 Geneva, Switzerland, Telephone 41-22732-7117

#41. **The Common Heritage Programme**, Suite 300, 200 Isabella Street, Ottawa, Ontario, K1S 1V7, Telephone (613) 235-7205, Fax (613) 235-7264

#42. **The Fort Whyte Centre**, P.O. Box 124, 1961 McCreary Road, Winnipeg, Manitoba, R3Y 1G5, Telephone (204) 989-8350

#43. **The Marquis Project**, International Development Education in Rural Manitoba, 200-107-7th Street, Brandon, Manitoba, R7A 3S5, Telephone (204) 727-5675 Fax 727-5683

#44. **The Sustainable Development Coordination Unit**, 305-155 Carlton Street, Winnipeg, Manitoba, R3C 3H8, Telephone (204) 945-1050

#45. **Tree Plan Canada, Forestry Canada**, 200-180 Main Street, Winnipeg, Manitoba, R3C 1A6, Telephone (204) 983-4317, Fax 983-8792

#46. **UNESCO**, 7 Place de Fontenoy, 75700 Paris, France

#47. **United Nations Association** (Winnipeg Branch), c/o Earl Grey School, 2-340 Cockburn Street, Winnipeg, Manitoba, R3M 2P5, Telephone (204) 475-0513

#48. **United Nations Conference On Environment And Development (UNCED)**, P.O. Box 80, 160 Route de Florissant Conches, CH-1231, Switzerland

#49. **United Nations Development Program**, 1 UN Plaza, New York, New York, 10017 U.S.A.

#50. **United Nations Environment Program**, DC 2-0803 United Nations, New York, N.Y. 10017

#51. **World Resources Institute**, 1709 New York Avenue NW, 7th Floor, Washington, D.C. 20006, Telephone (202) 638-6300